

1 Listing of the Claims:

2 This listing of claims will replace all prior versions,
3 and listings, of claims in the application using (Original)
4 (Currently Amended) (New) (Canceled) (Previously Presented)
5 nomenclature, as recited in the below listing of claims.

6 1. (Currently Amended) A method of broadcasting from a proximal
7 cache at a proximal internet protocol address (IPA) routing
8 information for indicating an originator storing web content
9 data associated with a uniform resource locator (URL) of a web
10 server at an originating IPA permanently storing the web
11 content data, the method comprising the steps of:

12 generating at the proximal IPA an originating URL
13 identifier for indicating the URL,

14 generating at the proximal IPA a sourcing IPA for
15 indicating the originator,

16 generating at the proximal IPA a destination IPA for
17 indicating a destination cache,

18 associating at the proximal IPA the sourcing IPA and the
19 originating URL as the routing information, and

20 transmitting the routing information from the proximal
21 cache at the proximal IPA to the destination cache at a
22 destination IPA.

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1 2. (Previously Presented) The method of claim 1 further
2 comprising the steps of:

3 generating a distance metrics for indicating a web hop
4 distance of a number of the plurality of cooperative web caches
5 through which the URL web content data would be communicated
6 from a source at the sourcing IPA through the plurality of
7 cooperative web caches to the proximal web cache.

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9 3. (Previously Presented) The method of claim 2 wherein,
10 the originating URL identifier is a proximal URL
11 identifier, the sourcing IPA is the proximal IPA, the proximal
12 cache stores locally the web content data, and

13 the distance metric is one indicating that one web hop is
14 between the destination cache to the proximal cache.

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16 4. (Previously Presented) The method of claim 2 wherein, the
17 originating URL identifier is a source URL identifier,

18 the sourcing IPA indicates an IPA location of the source
19 distally storing the web content data,

20 the distance metric is greater than one indicating a
21 number greater than one of the number of web hops between the
22 destination cache through the proximal cache to the source
23 distally storing the web content data.

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25 5. (Canceled)

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1 6. (Previously Presented) The method of claim 4 wherein,
2 the source is the web server distally and permanently
3 storing the web content data, and
4 the sourcing IPA is a web server IPA indicating the IPA
5 location of the web server.

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8 7. (Original) The method of claim 1 wherein,
9 the originating URL identifier is selected from the group
10 consisting of,

11 an exact URL identifier being an exact URL comprising a
12 plurality of URL components,

13 a wildcard URL identifier being a wildcard URL comprising
14 a plurality of URL components a last URL component of which
15 being a wildcard component, and

16 a coded URL identifier being a coded URL comprising a
17 series of hashing codes of a decomposed URL being a
18 decomposition of the URL selected from the group consisting of
19 either an exact URL or a wildcard URL each of which comprising
20 a series of URL components, the series of hashing codes being a
21 sequence of hashing codes of respective URL segments of a
22 respective series of increasingly concatenated URL components
23 of the series of URL components of the URL.

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1 8. (Previously Presented) A method of broadcasting from a
2 proximal cache at a proximal internet protocol address (IPA) a
3 routing information for indicating a distal web cache storing
4 web content data associated with a uniform resource locator
5 (URL) of a web server permanently storing the web content data,
6 the proximal web cache is a first one of a plurality of
7 cooperative web caches, the distal web caches is a last one of
8 the plurality of cooperative web caches, the method comprising
9 the steps of:

10 generating at the proximal IPA a URL identifier for
11 indicating the web content data of the URL stored in the distal
12 web cache,

13 generating at the proximal IPA the proximal IPA for
14 indicating the location of the proximal cache,

15 generating at the proximal IPA a destination IPA for
16 indicating a destination cache,

17 generating at the proximal IPA a distance metric for
18 indicating a web hop distance of any number of the plurality of
19 cooperative web caches through which the web content data would
20 be communicated from the distal web cache to the destination
21 web cache,

22 associating at the proximal IPA the proximal IPA and the
23 URL identifier and the distance metric as the routing
24 information, and

25 transmitting the routing information from the proximal
26 cache at the proximal IPA to the destination cache at a
27 destination IPA.

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1 9. (Original) The method of claim 8 wherein,

2 the distance metric is greater than one indicating a
3 number greater than one of the number of web hops between the
4 destination cache through the proximal cache to the distal web
5 cache storing the web content data.

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7 10. (Original) The method of claim 8 wherein, the URL

8 identifier is selected from the group consisting of,

9 an exact URL identifier being an exact URL comprising a
10 plurality of URL components,

11 a wildcard URL identifier being a wildcard URL comprising
12 a plurality of URL components a last URL component of which
13 being a wildcard component, and

14 a coded URL identifier being a coded URL comprising a
15 series of hashing codes of a decomposed URL being a
16 decomposition of the URL selected from the group consisting of
17 either an exact URL or a wildcard URL each of which comprising
18 a series of URL components, the series of hashing codes being a
19 sequence of hashing codes of respective URL segments of a
20 respective series of increasingly concatenated URL components
21 of the series of URL components of the URL.

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1 11. (Previously Presented) The method of claim 8 further
2 comprising the steps of:

3 repeating the URL identifier generating step, proximal IPA
4 generating step, distance generating step, the associating
5 step, a plurality of times for generating a plurality of
6 routing information each comprising a URL identifier and a
7 respective distance metric, and

8 incorporating the plurality of routing information within
9 a protocol data structure within a routing packet prior to the
10 transmitting step, the routing protocol packet comprising the
11 URL and a respective distance metrics and comprising the
12 proximal IPA and the destination IPA.

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12. (Currently Amended) A method of broadcasting from a proximal cache at a proximal internet protocol address (IPA) routing information for indicating a distal web cache storing web content data associated with a uniform resource locator (URL) of a web server permanently storing the web content data, the proximal web cache is a first one of a plurality of cooperative web caches, the distal web caches cache is a last one of the plurality of cooperative web caches, the method comprising the steps of:

storing at the proximal IPA in a routing table a plurality of URL identifiers cross referenced to a respective plurality of distance metrics,

generating at the proximal IPA a URL identifier of the plurality of URL identifiers, the URL identifier for indicating the web content data of the URL stored in the distal web cache,

generating at the proximal IPA the proximal IPA for indicating the location of the proximal cache,

generating at the proximal IPA a destination IPA for indicating a destination cache,

generating at the proximal IPA a distance metric by cross referencing the URL identifier to one of the plurality of URL identifiers and to a respective one of the plurality of distance metrics for indicating a web hop distance of any number of the plurality of cooperative web caches through which the web content data would be communicated from the distal web cache to the destination web cache,

associating the proximal IPA and the URL and the distance metric as the routing information, and

1 transmitting the routing information in a routing packet
2 within a routing protocol from the proximal cache at the
3 proximal IPA to the destination cache at a destination IPA.
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5 13. (Original) The method of claim 12 wherein,

6 the originating URL identifier is selected from the group
7 consisting of,

8 an exact URL identifier being an exact URL comprising a
9 plurality of URL components,

10 a wildcard URL identifier being a wildcard URL comprising
11 a plurality of URL component a last URL component of which
12 being a wildcard component, and

13 a coded URL identifier being a coded URL comprising a
14 series of hashing codes of a decomposed URL being a
15 decomposition of the URL selected from the group consisting of
16 either an exact URL or a wildcard URL each of which comprising
17 a series of URL components, the series of hashing codes being a
18 sequence of hashing codes of respective hashing of URL segments
19 of a respective series of increasingly concatenated URL
20 components or the series of URL components of the URL.
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1 14. (Previously Presented) The method of claim 12 further
2 comprising the steps of:

3 repeating the URL identifier generating step, proximal IPA
4 generating step, distance generating step, the associating
5 step, a plurality of times for generating a plurality of
6 routing information each comprising a URL identifier and a
7 respective distance metric, and

8 incorporating the plurality of routing information within
9 a protocol data structure within the routing packet prior to
10 the transmitting step, the routing protocol packet comprising
11 the URL and a respective distance metric and comprising the
12 proximal IPA and the destination IPA.

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14 15. (Original) The method of claim 12 wherein,

15 the storing steps creates a routing table for cross
16 referencing the plurality of URL identifiers to the plurality
17 of distance metrics and to one or more juxtaposed cooperative
18 web caches IPAs of one or more juxtaposed cooperative web
19 caches of the cooperative web caches, the one or more
20 juxtaposed cooperative web caches for routing URL identifiers
21 to distal web caches storing the web content data of the
22 respective plurality of URL identifiers.

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24 16. (Previously Presented) The method of claim 15 wherein,

25 the proximal cache and the one or more juxtaposed
26 cooperative web caches being within a local group of
27 cooperative web caches.

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1 17. (Previously Presented) The method of claim 16 wherein,
2 the proximal cache is within one or more local groups of
3 cooperative web caches.

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5 18. (Previously Presented) The method of claim 1 wherein,
6 the routing information is communicated in a packet
7 comprising a routing item associating the sourcing IPA and the
8 originating URL.

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10 19. (New) The method of claim 1 further comprising the step of,
11 storing in the destination cache at the destination IPA in
12 a forwarding and routing table the association between the URL
13 and the source IPA, the forwarding table for determining the
14 source IPA from a URL request for forwarding and routing a
15 request for web content data to the source IPA.

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18 20. (New) The method of claim 8 further comprising the step of,
19 storing in the destination cache at the destination IPA in
20 a forwarding and routing table the association between the URL
21 and the source IPA, the forwarding table for determining the
22 source IPA from a URL request for forwarding and routing a
23 request for web content data to the source IPA.

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